



# Gwich'in Land and Water Board

Box 2018 Inuvik NT X0E 0T0

PH 867 777 7960 FX 867 777 7970

## SCHEDULE III

(Subsection 6(1) of the Northwest Territories Water Regulations)

### APPLICATION FOR WATER LICENCE, AMENDMENT OF LICENCE OR RENEWAL OF LICENCE

APPLICATION/LICENCE NO: \_\_\_\_\_  
(Amendment or Renewal only)

#### 1. NAME AND MAILING ADDRESS OF APPLICANT

Applicant's Name Department of Transportation

Mailing Address P.O. Box 1320

Community Yellowknife,

Prov/Terr NT Postal Code X1A 2L9

Telephone (867)873-7647 Fax (867)873-0288

Email Larry\_Purcka@gov.nt.ca Other (Cell) (867)765-8412

#### 2. ADDRESS OF HEAD OFFICE IN CANADA IF INCORPORATED

Mailing Address Same As Above

Community \_\_\_\_\_

Prov/Terr \_\_\_\_\_ Postal Code \_\_\_\_\_

Telephone \_\_\_\_\_ Fax \_\_\_\_\_

#### 3. LOCATION OF UNDERTAKING

(Describe and attach a map, indicating watercourses and location of any proposed waste deposits)

The Department of Transportation proposes to replace the large diameter culvert that failed in September 2007 with a 30 metre long precast concrete bridge at approximate kilometre 220.8 on the Dempster Highway as shown on Map Sheet 107 B/2 (E) (attached) and remove an existing emergency detour adjacent to the site.

Longitude 68° 05' 20" N (approx) Latitude 133° 29' 35" W (approx)

**4. DESCRIPTION OF UNDERTAKING**

(Describe and attach plans)

The Department of Transportation proposes to replace the large diameter culvert that was installed in 1973 and failed in September 2007 with a 30 metre long precast concrete bridge at approximate kilometre 220.8 on the Dempster Highway and remove an existing emergency detour that was placed adjacent to the site in September 2007. The failed culvert was a 40.9 metre long elliptical pipe, 8920mm X 5430mm in diameter. The new bridge structure will open the channel to its approximate original opening, >7 metres wide, with no piers or other obstructions within the creek and allow for greater capacities at higher flow levels.

At this time, an emergency (temporary) culvert and detour has been placed upstream from the failed culvert that is accessed through the Vadzaih Van Tshik Campgrounds. The failed culvert has been removed and the crossing has been excavated to a minimum opening of seven (7) metres wide and slopes have been contoured to approximately 3:1 to allow for the installation of steel piling and armor rock.

Work to be carried out under this Water Licence includes the installation of four rolls of steel pilings (having six to ten piles in each roll) using a piling hammer, crane and welder and then topping each roll of piling with a pile cap. When this is completed the installation of armor stone to protect the creek and approach embankments will be undertaken using trucks, loaders and backhoes. This material will be clean shot-rock obtained from the Departments dolomite quarry near the Inuvik Airport or another suitable quarry. The next stage will be the installation of pre-cast concrete girders/deck panels, bridge rail posts and bridge rail using cranes, welders and loaders and the construction of bridge approaches using trucks, loaders, dozers and backhoes. No in-stream activities are planned for any of these operations.

The final operation on site will be the removal of the detour and site reclamation using trucks, loaders, backhoes and cats. Careful consideration will be given during the removal of the emergency culvert from within the active stream to mitigate the spill or agitation of earth materials into the stream waters. This work is planned for mid April 2008, while the creek is still under winter conditions.

Some of the final site reclamation (seeding and re-vegetation) will be undertaken during the spring and summer months of 2008.

**5. TYPES OF UNDERTAKING**

- 1 - Industrial \_\_\_\_\_
- 2 - Mining and milling \_\_\_\_\_
- 3 - Municipal \_\_\_\_\_
- 4 - Power \_\_\_\_\_
- 5 - Agriculture \_\_\_\_\_
- 6 - Conservation \_\_\_\_\_
- 7 - Recreation \_\_\_\_\_
- 8 - Miscellaneous (describe) Public Highway

**6. WATER USE**

- To obtain water \_\_\_\_\_
- Flood control \_\_\_\_\_
- To cross a water course X
- To divert water \_\_\_\_\_
- To modify the bed or bank of a watercourse \_\_\_\_\_

To alter the flow of, or store, water \_\_\_\_\_  
Other (describe) \_\_\_\_\_

**7. QUANTITY OF WATER INVOLVED**

(Litres per second, litres per day or cubic metres per year, including both quantity to be used and quality to be returned to source)

**No water use is proposed. This Water Licence is required to cross a watercourse greater than 5 metres wide.**

**8. WASTE DEPOSITED**

(Quantity, quality, treatment and disposal)

**No waste is proposed to be deposited into or around the watercourse. Any waste generated will be moved from site and deposited in an appropriate waste disposal site in Inuvik.**

**9. OTHER PERSONS OR PROPERTIES AFFECTED BY THIS UNDERTAKING**

(Give name, mailing address and location; attach list if necessary)

**The replacement of the failed culvert with a bridge structure is an emergency requirement, as all traffic using the Dempster Highway to come to or leave Inuvik must now slow down and access a temporary detour through the Vadzaih Van Tshik Campground.**

**Although the culvert replacement/bridge installation project is expected to be completed prior to normal camping season, the Vadzaih Van Tshik Campground will also be effected as traffic now travels through a portion of the parking area and people carrying out traditional activities, i.e. spring hunts/trapping, may have restricted parking during construction activities.**

**All work is planned for completion prior to freshet or the normal tourist season.**

**10. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION**

**Most of the negative impacts at this crossing have already occurred. By installing a bridge in place of the failed culvert, the stream should have a larger capacity therefore the flow rates will be reduced making it easier for fish movement even in periods of high flow.**

**There will be significant amounts of noise during the pile driving, however, this will take place in late February - early March when there will not be many people carrying out traditional harvesting activities in the area. This will have little or no impact on highway traffic.**

**Some embankment fill material may spill into the stream during freshet or in future years. All earth embankments will be wrapped in silt fencing to contain this material and to mitigate infiltration into the stream.**

**During the removal of the culvert and emergency detour, some earth materials may enter into Caribou Creek. All efforts will be made to reduce the water flow during the removal stage. Sand bags and silt fencing will be deployed to isolate and regulate the water flow during this operation. Silt fencing will also be used to mitigate silt-laden materials from flowing too far downstream. As this operation will**

take place in early April, there should be minimal fisheries activities in the creek at that time. This activity should take less than a day to complete.

**11. CONTRACTOR AND SUB-CONTRACTORS**

(Names, addresses and functions)

Tenders are currently being Tendered and no Contracts for this on-site work has been awarded, therefore it is unknown who the Contractor(s) might be for the various work activities associated with the culvert replacement/bridge installation.

At minimum, there will be Contractor(s) for the following activities and estimated crew sizes:

- Pile Driving – 6 to 8 persons
- Placement of Armor Rock – 6 to 8 persons
- Bridge Installation – 10 persons
- Approach Construction – 8 to 10 persons
- Emergency Detour Removal and Clean-up – 6 to 8 persons

Total expected work effort is approximately 350 person days

**12. STUDIES UNDERTAKEN TO DATE**

(Attach list if necessary)

None. The work to be carried out under this Water Licence is considered an emergency replacement of a failed highway structure that was previously in place for approximately 34 years (since 1973). There is no change to the footprint and the function/usage remains the same.

**13. PROPOSED TIME SCHEDULE**

Start Date: FEBRUARY 25, 2008

Completion Date: AUGUST 01, 2008

LARRY PURCKA

Name (Print)

Mgr. Technical Services

Title (Print)

ORIGINAL SIGNED BY: Larry Purcka

Signature

February 04, 2008

Date

**FOR OFFICE USE ONLY**

Application Fee            Amount: \$ \_\_\_\_\_            Receipt No.: \_\_\_\_\_

Water Use Deposit        Amount: \$ \_\_\_\_\_            Receipt No.: \_\_\_\_\_

(Please make all cheques payable to the Receiver General)

**Spill Contingency Plan  
Culvert Replacement/Bridge Installation  
Caribou Creek  
Dempster Highway - km 220.8**

A Document to Accompany the Water Licence Application  
to the Gwich'in Land and Water Board

Department of Transportation

February 2008

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## 1.0 Background

- Dates of Operation:** February 2008 to August 2008
- Project Description:** The Department of Transportation (DoT) intends to replace the failed culvert at Caribou Creek, Dempster Highway – km 220.8, with a 30 metre long precast concrete bridge. This bridge will be installed at the same location as the location of the failed culvert. This bridge will be placed on top of four (4) rolls of steel piles and will be a clear span over the active channel. Approaches to the bridge will not be modified as the bridge will be built to match the existing grade. The emergency detour road, including the temporary culvert will be removed and the area will be rehabilitated after the culvert replacement/bridge installation is completed in the late winter of 2007/2008.
- Site Description:** The work will take place along the Dempster Highway at the crossing of the Caribou Creek at km 220.8. The approximate coordinates of the crossing are:
- Latitude: 68° 05' 20" N  
Longitude 133° 29' 35" W
- The construction zone will extend approximately 50 metres north and south of the creek crossing.
- Types of Contaminants:** Diesel fuel, gasoline, hydraulic fluid and vehicle lubricants will be used on the worksite and in the equipment.
- Storage of Contaminants:** Diesel will be supplied by a fuel truck. Containers separate from the fuel truck are not anticipated. Refueling of equipment will take place within the parking lot of the Vadzaih Van Tshik Campground or along the roadway of the Dempster Highway at a distance of 100 m from the ordinary high water mark.
- Use of Fuel Truck/ Route:** Fuel will be transported to the site from local sources in Inuvik by the fuel truck.

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## Spills Containment and Clean-up Training:

The construction foreman will review the 1997 NWT Spills Containment and Clean-up Course.

## 2.0 Potential Spill Incidents

### 2.1.1 Refueling of Vehicle

**Incident:** Refueling hose could break, spring a leak, fall out of the gas receptacle, or the tank could be overfilled, thereby spilling fuel on the refueling area.

**Consequences:**

- i) Limited area puddles of fuel
- ii) Hose breaks off at tank, leaking large amount of fuel over a large area, fluid then flows steadily from the tank

**Preventative Measures:**

- i) All refueling should occur in an area well back of the high water mark. Crew should be aware of emergency shut-offs.
- ii) Site will be stocked with a complement of spill management material.
- iii) Hazmats or drip pans should be utilized during any refueling of vehicles.

### 2.1.2 Vehicle Storage and Operation

**Incident:** Vehicle could leak fuel while in operation or during overnight storage. Vehicle could experience mechanical problems discharging fluids.

**Consequences:** At best, small puddles of fuel, at worst the entire contents of the vehicle could be discharged.

**Preventative measures:**

- i) Vehicles will be stored in an area well back of the high water mark.
- ii) Site will be stocked with a complement of spill management materials.
- iii) Hazmats or drip pans should be utilized during overnight storage of vehicles.

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### 2.1.3 Fuel Truck Accident En-route to Site

- Incident:** Fuel truck has accident and overturns while servicing site.
- Consequences:** Worst case scenario: truck overturns, potentially discharging contents over a wide area. Accident could happen without knowledge of DoT or the Contractor.
- Preventative Measures:**
- i) Coordination and communication between DoT, Contractor and fuel supplier including routes and times of delivery.
  - ii) The fuel supply company should have a Spills Contingency Plan
  - iii) The fuel truck should be stocked with spill containment equipment.
  - iv) DoT personnel and the construction crew should be prepared to mobilize to contain the spill. The on-site crew may be the closest equipment to the spill.

## 3.0 On-site Spill Containment and Management Equipment

- Heavy Equipment:** To remove soiled material or construct containment ditches, the cat, backhoe and or loader will be available for the full duration of this work.
- Hand Tools:** A shovel, axe, hammer and wrenches will be available throughout the duration of this work to ensure that a boom system can be built should it be required.
- Spill Kit:** 45 gallon drums of absorbent material, gloves, disposal containers for immediate removal of contaminated materials.
- Containment Structures:** LAND/ICE BASED. To contain spilled hazardous materials, containment berms should be constructed to create an area of sufficient size to hold 10% more than the maximum capacity of the maximum, volume within the bermed area. The bermed area should be lined with a material impervious to leakage.

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## 4.0 Spills Reporting Procedures

### Contact Phone Numbers

#### Department of Transportation (GNWT)

Head Structures – Ann Lanteigne	(867) 873-8010
Project Engineer – Peter Praetzel	(867) 920-6469
Senior Environmental Affairs Analyst - Rhonda Batchelor	(867) 873-7063
Inuvik Regional Superintendent Gurdev Jagpal	(867) 777-7348

**NWT Spills Hotline** (867) 920-8130

Note: calling this number will also notify the Environmental Protection Division of Environment Canada who will deploy officers in response

**Town of Inuvik** (867) 777-8600

**Inuvik Fire Department** (867) 777-2222

**Inuvik RCMP** (867) 777-1111

**Contractor** To be determined

**Gwich'in Land and Water Board** (867) 777-4954

**Department of Fisheries and Oceans** (867) 777-7500  
Area Habitat Biologist (867) 777-7500

#### Department of Environment and Natural Resources

Environmental Protection (867) 873-7654  
Inuvik ENR Office (867) 777-7311

**Department of Indian and Northern Affairs** (867) 777-3361

## 5.0 Spill Response Procedures

The following procedure is to be followed in the event of a spill. Steps are listed in the order of importance; however, depending on circumstances, conditions and potential injuries, this order may need to be adjusted to meet specific needs.

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## 1. Identify the Product Spilled

If the identify is unknown, and identification mean further risks, then action must be based on the assumption that the product is dangerous. The crew is not to smell, taste, touch or attempt to reach ruptured containers if they are surrounded by contaminant.

## 2. Assessment of Dangers and Hazards

Immediate determinations must be made about the direction of the spill's progress, whether downhill, towards the water, or already in the water. As well, careful attention will be paid to the full nature of the incident: is this solely a surface contaminant? Are fumes an additional factor? Are there any injuries current or possible?

## 3. Stop the Flow at the Source

Has the flow been stopped or is it still leaking? Is there an emergency shut-off valve? Have holes in the container been patched? Is the container empty? PRECAUTION - ONLY ATTEMPT TO STOP THE FLOW IF IT IS SAFE TO DO SO.

## 4. Take Actions to Contain Spill

Prompt containment can reduce environmental exposure and risk. Containment measures would be land or ice based. Measures in either circumstance include application of absorbants, construction of berms and diversion/collection trenches.

## 5. Report Action to the NWT Spills Hotline

When calling the NWT Spills Hotline (867-920-8130), the person reporting the spill shall give as much of the following information as possible:

- Date and time of spill
- Direction spill is moving (of if it has stopped)
- Name and phone number of persons close to the location of the spill
- Type and contaminant spilled and quantity spilled
- Cause of the spill
- Whether the spill is continuing or has stopped
- Description of the exiting containment
- Actions taken to recover, clean-up and dispose of spilled contaminant
- Name, address and phone number of person reporting the spill
- Name and person in charge of management or control at time of spill

NOTE: It is important to note that the Spills Hotline Operator is NOT A SPILL CONTAINMENT EXPERT. The role of the operator is solely to relay information to the appropriate channels.

## **6.0 Reporting Procedure Chain of Events**

### **1. Worker notices spill**

Is the source still flowing?

Can the source be safely turned off? If yes, do so.

### **2. Worker notifies DoT Project Engineer or Supervisor.**

Then, depending on the circumstances, the Project Engineer or Supervisor will either:

- decide to take immediate actions and stop the source of the flow or contain the flow
- call the NWT Spills Hotline to file a report. A copy of the report is included in Appendix A.

### **3. Project Engineer or Supervisor notifies:**

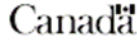
NWT spills hotline  
Department of Transportation  
Town of Inuvik

### **4. NWT Spills Hotline notifies**

Environment Canada  
Government of the Northwest Territories  
Department of Fisheries and Oceans

### **5. The appropriate personnel arrive on-site to contain or clean-up the spill.**

**APPENDIX – NWT Spill Report Form (2007)**



**NT-NU SPILL REPORT**

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

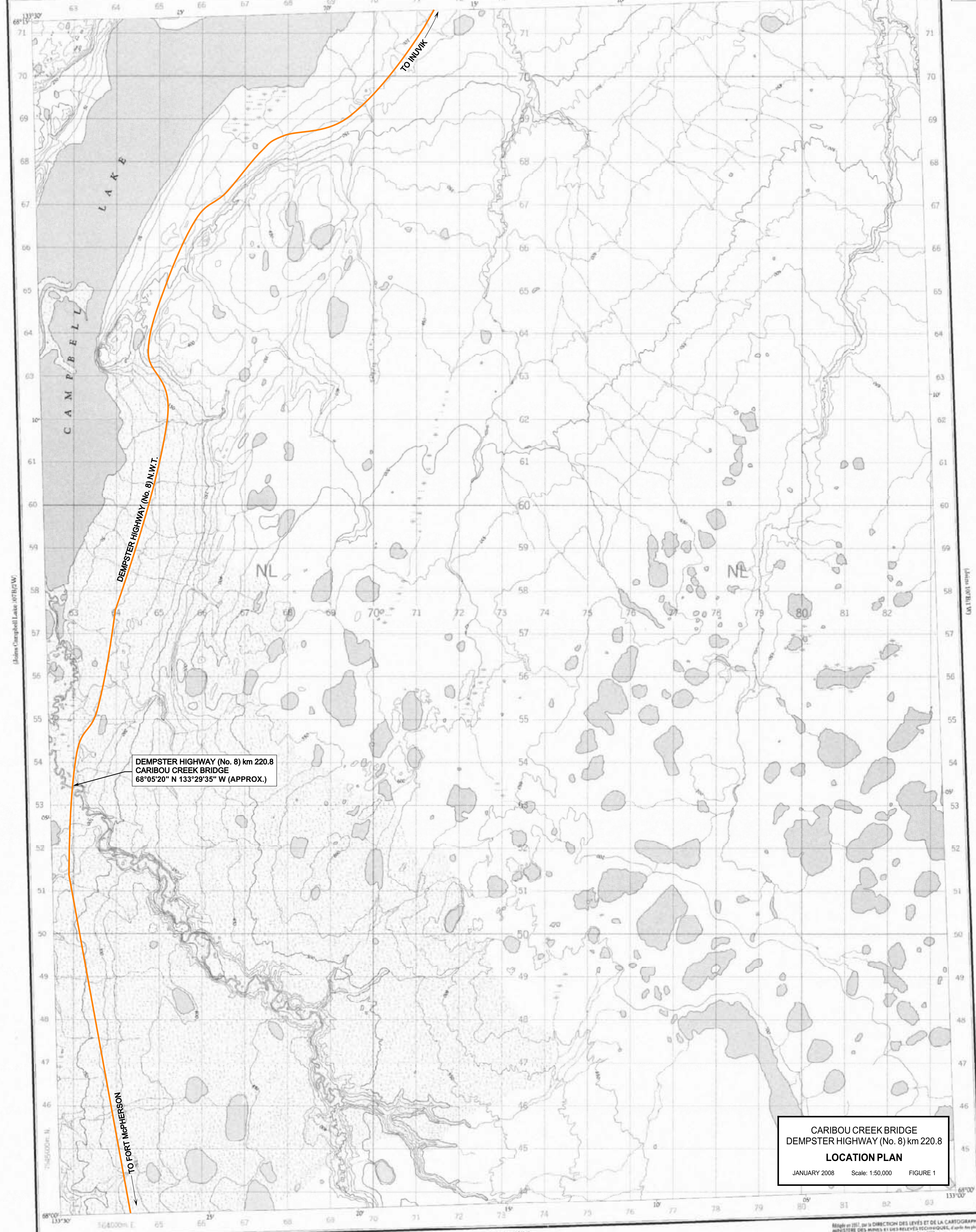
NT-NU 24-HOUR SPILL REPORT LINE  
 TEL: (867) 920-8130  
 FAX: (867) 873-6924  
 EMAIL: spill@govt.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH - DAY - YEAR		REPORT TIME		<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER _____
	B OCCURRENCE DATE: MONTH - DAY - YEAR		B OCCURRENCE TIME			
C	LAND USE PERMIT NUMBER (IF APPLICABLE)			WATER LICENCE NUMBER (IF APPLICABLE)		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION				REGION <input type="checkbox"/> NWT <input type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE DEGREES                      MINUTES                      SECONDS			LONGITUDE DEGREES                      MINUTES                      SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION			
G	ANY CONTRACTOR INVOLVED		CONTRACTOR ADDRESS OR OFFICE LOCATION			
H	PRODUCT SPILLED		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
	SECOND PRODUCT SPILLED (IF APPLICABLE)		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER	
I	SPILL SOURCE		SPILL CAUSE		AREA OF CONTAMINATION IN SQUARE METRES	
J	FACTORS AFFECTING SPILL OR RECOVERY		DESCRIBE ANY ASSISTANCE REQUIRED		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT	
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS					
L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE	
	M ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE	
REPORT LINE USE ONLY						
N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130	
	LEAD AGENCY <input type="checkbox"/> EC <input type="checkbox"/> OCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC			SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED
AGENCY		CONTACT NAME	CONTACT TIME	REMARKS		
LEAD AGENCY						
FIRST SUPPORT AGENCY						
SECOND SUPPORT AGENCY						
THIRD SUPPORT AGENCY						

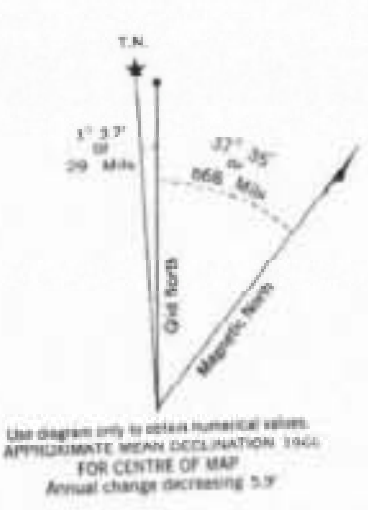
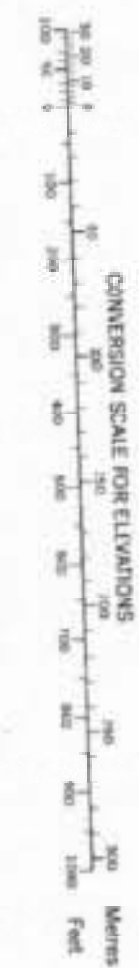
Military users, refer to this map as: Références de la carte pour usage militaire.

SERIES A 733 série MAP 107 R/2 E CARTE ÉDITION 1 MCE ÉDITION



DEMPSTER HIGHWAY (No. 8) km 220.8  
CARIBOU CREEK BRIDGE  
68°05'20" N 133°29'35" W (APPROX.)

CARIBOU CREEK BRIDGE  
DEMPSTER HIGHWAY (No. 8) km 220.8  
LOCATION PLAN  
JANUARY 2008 Scale: 1:50,000 FIGURE 1



GRID ZONE DESIGNATION	GRID SQUARE IDENTIFIER
BW	NL

TO OBTAIN A REFERENCE TO NORTH: USE METERS

EXAMPLE: STREAM JUNCTION	
CASPING: Head number on grid line immediately to left of point	72
EASTING: Northings of a square from the line eastward to point	724
NOTE: Head number on grid line immediately below point	57
EASTING: Northings of a square from the line eastward to point	574
WEATHER GRID REFERENCE	724574

ONE THOUSAND METRE  
UNIVERSAL TRANSVERSE MERCATOR GRID  
ZONE B

Original, 100,000 Scale Surveys and Mapping Branch, Department of Mines and Technical Surveys, from aerial photographs taken in 1952 and 1953. From 1962.

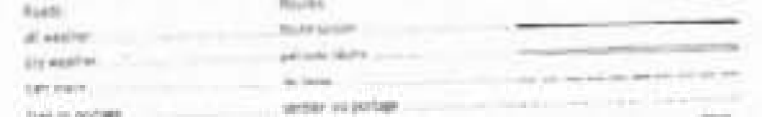
All use of this map shall not be done as proof or legal evidence.

Copies may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, or other approved map dealers.

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CAMPBELL LAKE  
DISTRICT OF MACKENZIE  
NORTHWEST TERRITORIES

SCALE 1:50,000 ÉCHELLE



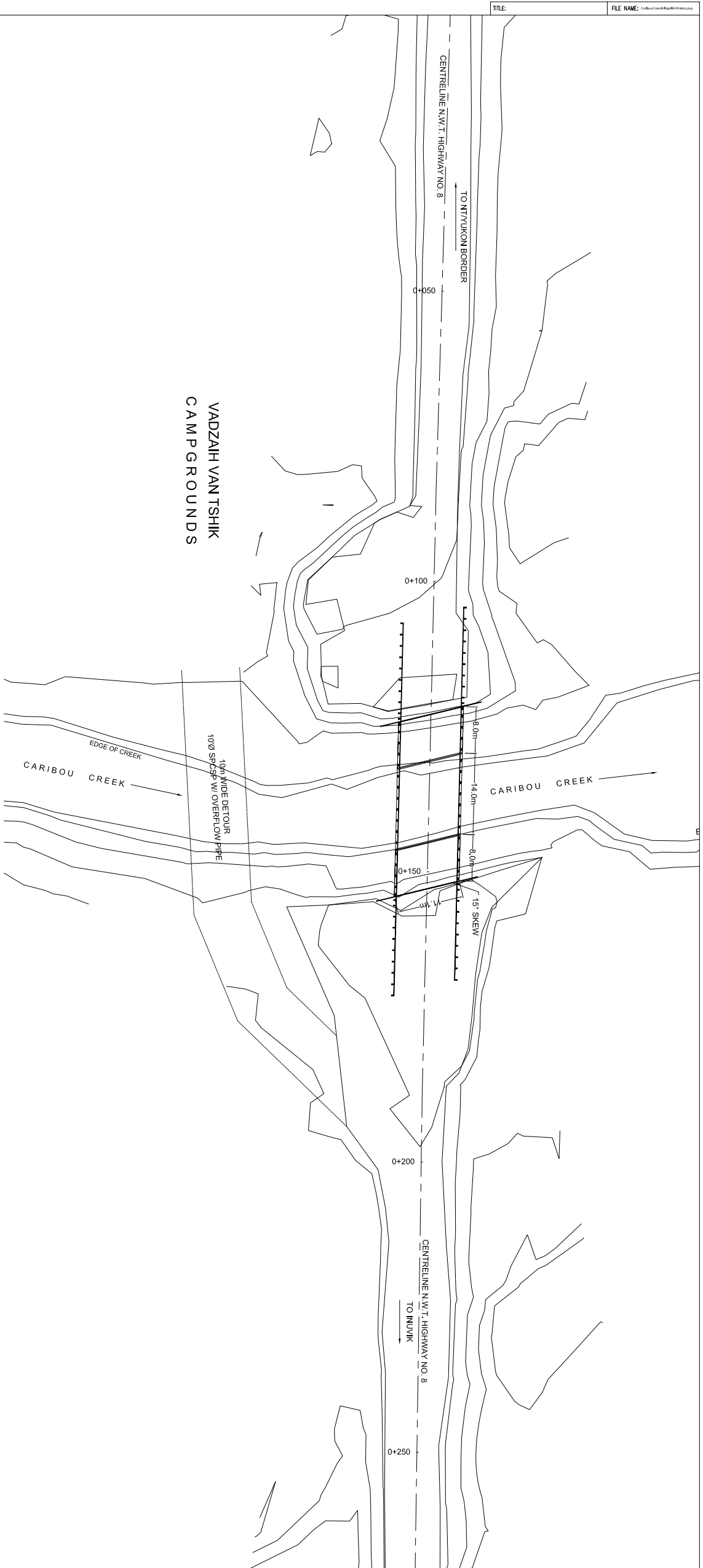
Building	Édifice	Bar	Bar
School	École	Post Office	Bureau de poste
Church	Eglise	Warehouse	Entrepôt
Lighthouse	Phare	Radio and tele. station	Station radio et télé.
Power line bridge	Pont sur ligne électrique	Check dam (dépresseur)	Clôture à eau
Stream, culvert, dam or sluiceway	Cours d'eau (déversoir, barrage)	Lake (intermittent, not marked)	Lac (intermittent, non marqué)

Révisé en 1973, par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DES MINES ET DES LEVÉS TECHNIQUES, à partir des photos aériennes prises en 1952 et 1953. Révisé en 1962.

Les données de cette feuille sont identiques à celles des feuilles voisines.

For a further list of titles and names see Canada Map Office, Department of Energy, Mines and Resources, Ottawa, or other approved map dealers.

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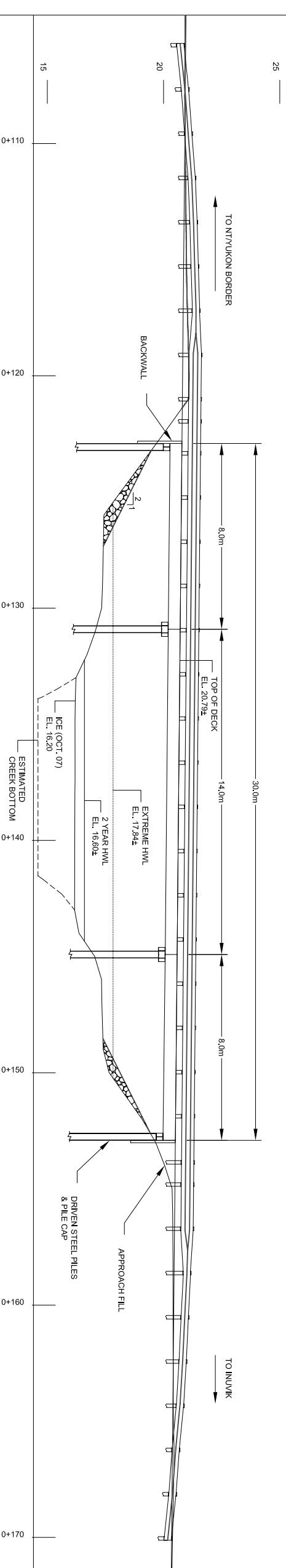
VADZAIH VAN TSHIK  
CAMP GROUNDS

EDGE OF CREEK  
CARIBOU CREEK

10m WIDE DETOUR  
100 Ø SPCSP W/ OVERFLOW PIPE

15 SKEW

1.1m

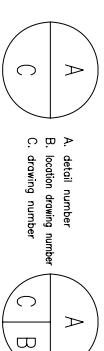


GENERAL LAYOUT  
PLAN/PROFILE

Title

CARIBOU CREEK BRIDGE  
DEMPESTER HIGHWAY (No. 8)  
Km 220.8

Project



Rev.	Date	Description	Ok'd

Scale	AS SHOWN FOR A1 PAPER SIZE
Surveyed by	Sibbatic Surveys Oct. 2007
Drawn by	P. Embleton Nov. 2007
Designed by	Insignia Checked by P. Praetzel
Insignia	Insignia
Signature	Signature
Date	Date
Approved by	A. Lantegire
Project No.	Page 01 of 01
Drawing No.	01

